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10/521,177	01/14/2005	Yoji Ito	030662-117	2933

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EXAMINER	
SESE, JASON A	

ART UNIT	PAPER NUMBER
1794	

NOTIFICATION DATE	DELIVERY MODE
02/22/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No.	Applicant(s)	
	10/521,177	ITO, YOJI	
	Examiner	Art Unit	
	Jason A. Sese	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 November 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *11/23/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Art Unit: 1794

DETAILED ACTION

1. As per Applicant's response on November 23, 2007, claims 23-24 have been cancelled.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 6 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Hanmer et al. (WO 98/00475 – cited in IDS). For the purposes of this Office Action, the US version from the same patent family will be used (US 6,379,758).

Hanmer et al. disclose a liquid crystal display device, comprising a combination of polarizer and an optical compensation film. In a preferred embodiment of this invention, a polymerizable liquid crystal material, having a homeotropic or tilted homeotropic alignment, is coated directly on a polarizing membrane (col. 5, line 65 – col. 6, line 30). Figure 1a of Hanmer et al. provides an illustration of the device, where the inventive compensation film (**15**) is formed on the reflective polarizer (**14**), and further comprises a diffusor (**13**) (claim 6) and a liquid crystal cell (**18**) (claim 22).

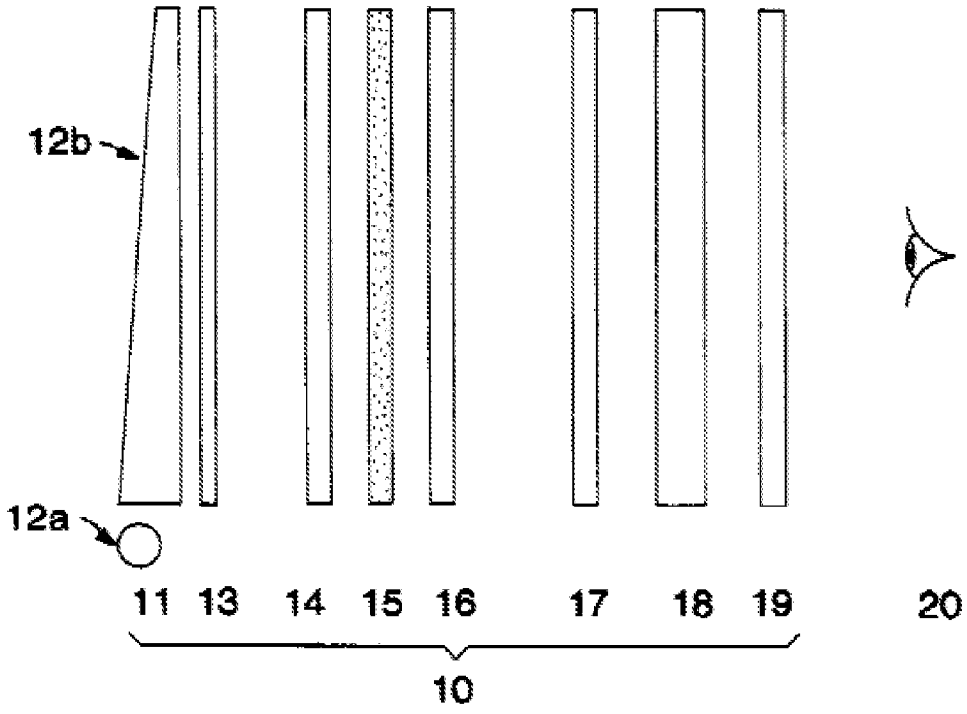

Figure 1a – Hanmer et al.

5. Claims 1 and 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Uesaka et al. (WO 02/068863). For the purposes of this Office Action, the US version from the same patent family will be used (US 6,977,700).

Uesaka et al. disclose a liquid crystal display device comprising an polarizing plate wherein an anisotropic liquid crystal film can be formed directly on a polarizer (col. 6, lines 19—28). As illustrated in Figure 3, shown below, the anisotropic liquid crystal film (**7**) is formed on a polarizer (**8**), and further comprises a liquid crystal cell (**4**).

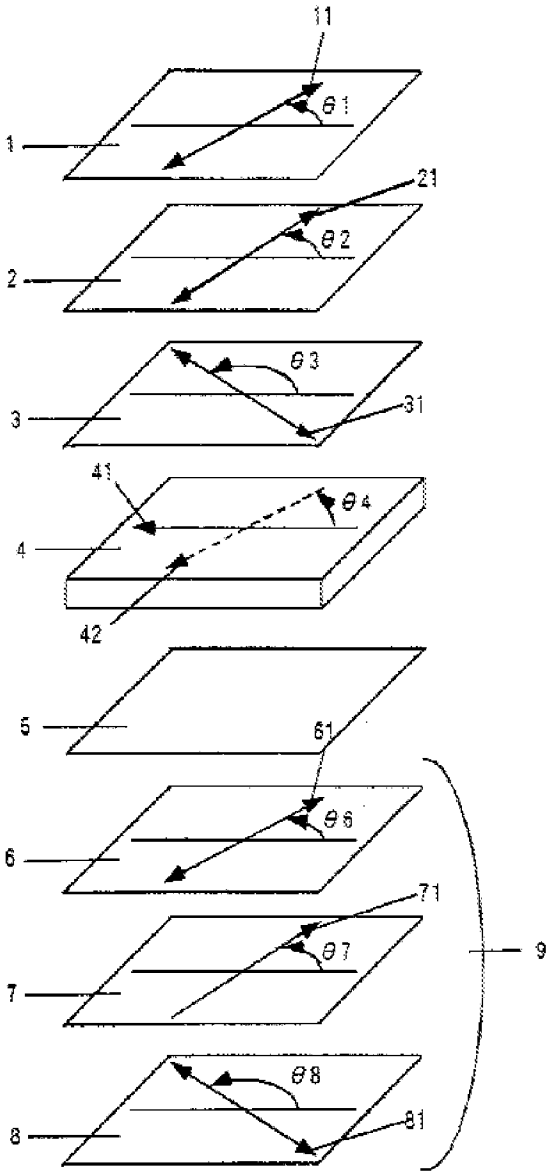

Figure 3—Uesaka et al. (US 6,977,700)

Art Unit: 1794

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uesaka et al. (WO 02/068863). For the purposes of this Office Action, the US version from the same patent family will be used (US 6,977,700).

Regarding claims 6-7, Uesaka et al. do not specifically point out a light-diffusing or anti-reflection layer, but suggest that in addition to the polarizer and the anisotropic element, the circular polarizer may contain more layers, such as light diffusing layers (claim 6) and anti-reflection layers (claim 7) (col. 6, lines 55-60).

Regarding claim 8, Uesaka et al. disclose that transparent support (**6**) is provided on the circularly polarizing plate (**9**) of the invention, but are silent to the thickness of this support. However, absent any criticality to this thickness range, it would have been obvious to one of ordinary skill to optimize the thickness of the transparent support to achieve the desired properties of the polarizing plate.

Additionally, Uesaka et al. suggest that the polarizing plate may also contain an anti-reflection layer (col. 6, lines 55-60). It would have been obvious to one of ordinary skill in the art to dispose this layer on the transparent support (**6**) shown above in Figure 3 of Uesaka et al.

8. Claims 2, 5, 7-10, 13, 15-19 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanmer et al. (WO 98/00475 - cited in IDS) as applied to claim 1 above, in view of Arakawa et al. (US 6,400,433). For the purposes of this Office Action, the US version from the same patent family will be used for Hanmer et al. (US 6,977,700).

Hanmer et al. disclose a polarizing plate wherein a liquid crystal anisotropic film is disposed directly on a polarizer, thereby simplifying the production process (col. 6, lines 19-28).

Arakawa et al. disclose that in conventional arrangements, an optically anisotropic film can function as the protective film for linear polarizing membrane can be (col. 26, lines 27-34).

However, based on the disclosure of Hanmer et al., it would have been obvious to one of ordinary skill in the art that a liquid crystal anisotropic film could be used in place of the polymer film disclosed by Arakawa et al. Additionally, one of ordinary skill would have appreciated that the production process would be simplified by disposing this anisotropic film directly on the polarizing membrane, as demonstrated by Hanmer et al.

Regarding claim 2, Hanmer et al. disclose the anisotropic liquid crystal layer, disposed on a polarizing membrane of claim 1, and disclose that the liquid crystal has a homeotropic or tilted homoetropic state, but are silent to the specific incline angles (col. 5, line 65 - col. 6, line 1).

Arakawa et al. disclose an anisotropic liquid crystal layer, which can be coupled with a linear polarizing membrane (col. 26, lines 27-34). For this anisotropic liquid crystal layer, Arakawa et al. disclose that the preferred incline angle of rod-like liquid crystal molecules is in the range of 0° to 40° (col. 12, lines 30-32), overlapping the range of more than 5° claimed by the Applicant.

Because the both inventions couple anisotropic liquid crystal layers with polarizing films, it would have been obvious to one of ordinary skill in the art to use the incline angles of Arakawa et al. in the anisotropic liquid crystal layer of Hanmer et al.

Regarding claim 5, Hanmer et al. disclose the anisotropic liquid crystal layer, disposed on a polarizing membrane of claim 1, but is silent to the thickness of the polarizing membrane.

Arakawa et al disclose an anisotropic liquid crystal layer, which can be coupled with a linear polarizing membrane (col. 26, lines 27-34), but is also silent to the thickness of the membrane. However Arakawa et al. state that a motivation for the invention is that current polarizing plates are relatively thick (col. 2, lines 4-5), and that using liquid crystals as the optically anisotropic layer allows for a thinner polarizer (col. 2, lines 41-46).

As the motivation for the invention is to create a thinner polarizing plate, it would have been obvious to one of ordinary skill in the art to minimize the thickness of polarizing membrane of Arakawa et al., and apply the same motivation to Hanmer et al.

Regarding claim 7, Hanmer et al. disclose the anisotropic liquid crystal layer, disposed on a polarizing membrane of claim 1, but is silent to an anti—reflection layer.

Arakawa et al disclose an anisotropic liquid crystal layer, which can be coupled with a linear polarizing membrane (col. 26, lines 27-34), and further state that the polarizing plate can be used in an optical device such as an antireflection film, which inherently implies the use of an anti-reflection layer (col. 26, lines 36-39).

Because the both inventions couple anisotropic liquid crystal layers with polarizing films, it would have been obvious to one of ordinary skill in the art to use the invention of Hanmer et al. in the same manner as Arakawa et al. in an anti-reflection film.

Regarding claim 8, Hanmer et al. disclose the anisotropic liquid crystal layer, disposed on a polarizing membrane of claim 1, but is silent to a transparent support and an anti-reflection layer.

Arakawa et al disclose an anisotropic liquid crystal layer, which can be coupled with a linear polarizing membrane (col. 26, lines 27-34), and further teach that the polarizing plate can further comprise a transparent support (col. 25, lines 52-53), wherein said transparent support can have a thickness of 20 to 500 μm and can be subjected to a surface treatment (col. 26, lines 7-12). The Examiner reasons that a surface treatment could include an anti-reflection layer, taking into account the disclosure that the polarizing plate could be used in an antireflection film ((col. 26, lines 36-39).

Because the both inventions couple anisotropic liquid crystal layers with polarizing films, it would have been obvious to one of ordinary skill in the art to add the transparent support and surface treatment of Arakawa et al. to the polarizing plate of Hanmer et al.

Regarding claims 9-10 and 16-18, Hanmer et al. disclose the anisotropic liquid crystal layer, disposed on a polarizing membrane of claim 1, but is silent to a second anisotropic layer.

Arakawa et al disclose an anisotropic liquid crystal layer, which can be coupled with a linear polarizing membrane (col. 26, lines 27-34), and then specifies an optically anisotropic layer A and an anisotropic layer B (col. 2, lines 15-18). Arakawa et al. disclose director angles for rod-like liquid crystal molecules (col. 12, lines 29-32) and discotic molecules (col. 12, lines 44-47)

Further regarding claims 9-10, the range of values for each anisotropic layer disclosed by Arakawa et al. overlaps the 10° difference between the first and second anisotropic layers

as claimed by the Applicant. The range of rod-like molecules from 0° to 40° also overlaps the Applicant's stipulation that the molecules are oriented at an angle of less than 5°.

Further regarding claims 16-18, the reference teaches the orientation of discotic molecules to be 50° to 90°, overlapping the orientation angle of more than 5° of the Applicant. The range of rod-like molecules from 0° to 40° disclosed by Arakawa et al. also overlaps the Applicant's stipulation that the rod-like molecules in the second anisotropic layer are oriented at an angle of more than 15°.

Because the both inventions couple anisotropic liquid crystal layers with polarizing films, it would have been obvious to one of ordinary skill in the art to add the additional anisotropic layer of Arakawa et al. to the polarizing plate of Hanmer et al., and to use the disclosed orientation angles of the liquid crystal layers claimed in claims 9-10, 16-18, and in the treatment of the following claims 13, 15, 19 and 21.

Regarding claims 13 and 15, the Applicant claims that the second optically anisotropic layer comprises discotic liquid crystal molecules, which are described by Arakawa et al. to have an orientation angle in the range of 50° to 90° (col. 12, lines 45-57). This overlaps claim 13, that the orientation angle is more than 15°, and also claim 15, of having an orientation angle of more than 85°.

Regarding claim 19, where Arakawa et al. state that the inclination angle of the rod-like liquid crystal molecule is in the range of 0° to 40° (col. 12, lines 31-32), overlapping the Applicant's claim that the orientation angle is less than 5°.

Regarding claim 21, Arakawa et al. describe a quarter wave plate comprising a first optically anisotropic layer A and a second anisotropic layer B (col. 2, lines 15-18). The fact that the first layer A is anisotropic implies that it must have a certain ordered arrangement.

It would be inherent to the system that the ordered nature of the first anisotropic layer would lend a particular orientation to the second anisotropic layer B when they are in contact.

9. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hanmer et al. (WO 98/00475 – cited in IDS) in further in view of Ito et al. (JP 2000-304931). For the purposes of this Office Action, the US version from the same patent family will be used for Hanmer et al. (US 6,977,700).

Hanmer et al. teaches a polarizing plate which consists of a liquid crystal optically anisotropic layer which is formed on a polarizing membrane, but is silent to the use of discotic liquid crystal molecules.

Ito et al. describe an optically anisotropic layer in which discotic liquid crystal molecules have a horizontal orientation with respect to the substrate [0006].

Because discotic liquid crystal molecules are known to be used in optically anisotropic layers, it would have been obvious to one of ordinary skill in the art to use this type of liquid crystal and specific orientation in place of the anisotropic liquid crystal layer of Hanmer et al.

10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hanmer et al. (WO 98/00475 – cited in IDS) and Arakawa et al. (6,400,433) as applied to claim 10 above, and further in view of Ito et al. (JP 2001-166145). For the purposes of this Office Action, the US version from the same patent family will be used for Hanmer et al. (US 6,977,700).

Hanmer et al. and Arakawa et al. teach a polarizing plate wherein the rod-like liquid crystal molecules in the optical anisotropic layers are oriented at an angle between 0° and 40°

to the surface of the polarizing membrane, as described in the treatment of claim 10, but are silent to a varying tilt angle with respect to distance from the anisotropic plane.

Ito et al. describe a polarizing plate in which the tilt angle of the cylindrical liquid crystal in the optically anisotropic layer changes in relation to the distance of the liquid crystal molecule from the optically anisotropic plane [0005].

Because both inventions deal with polarizing plates comprising a liquid crystal anisotropic layer, it would have been obvious to one of ordinary skill in the art to vary the angle of orientation of rod-like liquid crystal molecules as a function of the distance from the polarizing membrane.

11. Claims 3, 11, 14 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hanmer et al. (WO 98/00475 – cited in IDS) and Arakawa et al. (6,400,433) as applied to claims 2, 10 and 19 above, and further in view of Ito et al. (JP 2001-166145). For the purposes of this Office Action, the US version from the same patent family will be used for Hanmer et al. (US 6,977,700).

Hanmer et al. and Arakawa et al. teach a structure that consists of two optically anisotropic layers in contact with each other, to create a quarter wave plate for a circular polarizer, wherein the anisotropic layers would consist of liquid crystal molecules (Arakawa col. 2, lines 15-25), but are silent to the orientation of the long axes of the rod-like liquid crystal with respect to the transmission axis of the polarizing membrane.

Ito teaches an elliptical polarizing plate that consists of two optically anisotropic layers, wherein the optimum angle between the largest refractive index and the layer plane is disclosed for each layer [0005].

Because both inventions deal with elliptical polarizing plates using two optically anisotropic layers, would have been obvious to one of ordinary skill in the art to optimize the proper alignment of the liquid crystal molecules in each layer, to achieve the orientation angles disclosed by Ito.

Response to Arguments

12. Applicant's arguments with respect to claims 1-22 have been considered but are moot in view of the new ground(s) of rejection.

13. Additionally, the Examiner notes that in claim 1, wherein "...the optically anisotropic layer is formed on the polarizing membrane..." the term "on" does not limit the claim to instances where the anisotropic layer is formed directly on the polarizing membrane.

While the specification does include the statement "a polarizing plate... wherein the optically anisotropic layer is formed (directly) on the polarizing membrane...," the claim reflects no such limitation, so it cannot be construed that the anisotropic film must be directly in contact with the polarizing membrane.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason A. Sese whose telephone number is 571-270-3473. The examiner can normally be reached on Mon-Thurs, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1794

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner
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